

Engine Misses

Locate Missing Cylinder by Running a 4-Cyl. Engine on Two Cylinders or a 6-Cyl. or 12-Cyl. on Three Cylinders and Shorting One Plug With a Screw-Driver

Missing Cylinder Located

Reverse Spark Plugs Between Cylinder Which Is Missing and One Which Is Firing

Trouble going with the plug shows plug trouble.
Try cleaning plug and setting spark gap.
Then try new plug.

Trouble in same cylinder after reversing plugs shows mechanical trouble.

1. Look for sticking valve.
2. Look for valve that does not seat (try compression as rough check on condition of valve seat).
3. Valve tappets set too close.

Engine Misses in or Does Not

At Low Speed

1. Plug gaps too small.
2. Plug gaps too wide (Most noticeable on a heavy pull).
3. Coil weak (Most noticeable with cold engine or on heavy pull).
4. Plug cracked (Acts like weak coil).
5. Burnt interrupter points.
6. Carburetor too lean (Pops in carburetor).
7. Carburetor too rich or dirt under needle valve (Gallops with light load).
8. Air leak in intake manifold.
9. Air leak due to worn throttle shaft.
10. Air leak due to worn valve stems or guides.
11. Valves timed too early.
12. Ignition in 8 cyl. or 12 cyl. engines not synchronized. (One set of cylinders firing earlier than the other set.)
13. Carburetor throttles not synchronized where two carburetors are used. (One opens more than the other.)

e Misses

by Running a 4-Cyl. or 8-Cyl.
or a 6-Cyl. or 12-Cyl. Engine
Shorting One Plug at a Time
Screw-Driver

Engine Misses in Any and All Cylinders
or Does Not Miss When Idling

At Low Speed

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At High Speed

1. Plug gaps too wide (Heavy pull).
2. Coil weak.
3. Interrupter gap too great.
4. Interrupter spring weak.
5. Interrupter arm sticking.
6. Time of contact too short.
7. A 4 cyl. coil on an 8 cyl. car.
8. Burnt interrupter points.
9. Carbureter too lean or too rich.
10. Fuel feed restricted — line partially clogged, starving carbureter.
11. Pre-ignition, also causes knocking. Due to carbon, projections in cylinder and wrong type spark plugs. Most likely to occur on heavy pulling.

Starter Does Not Crank Engine

Turns On Lights, Tries Starter to See Action of Lights

Lights Stay Bright

Open at starter switch

Open in motor
Possibly brush trouble

Solve with
Wire test
Lamp test
or
Voltmeter

Dim Slightly

Motor may run but may not have mechanical connection with engine

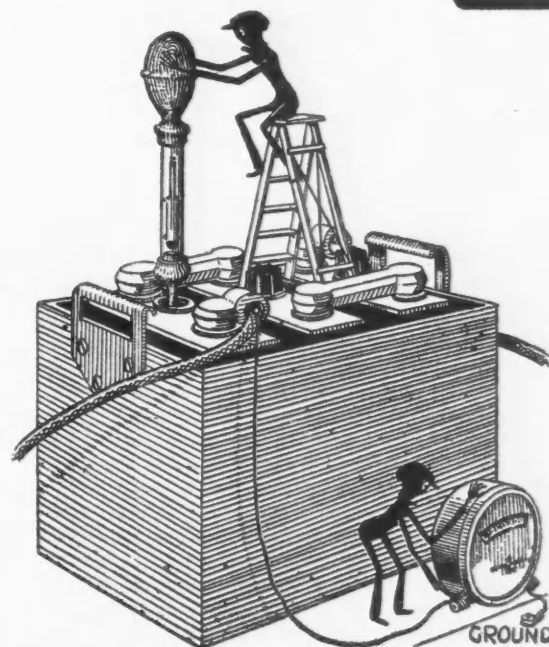
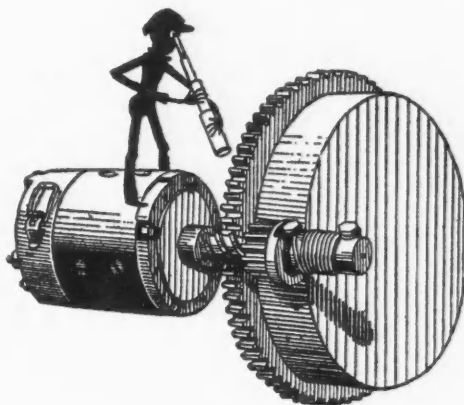
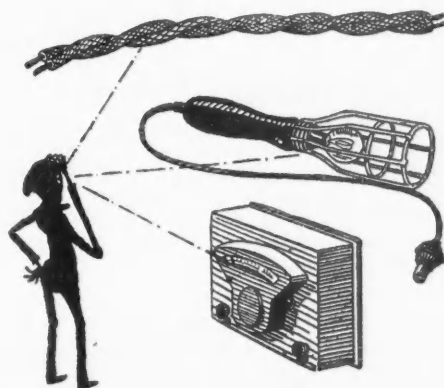
Solve by inspection

Dim Considerably

Battery discharged

Use hydrometer and voltmeter

Engine tight or starter binds or is shorted.



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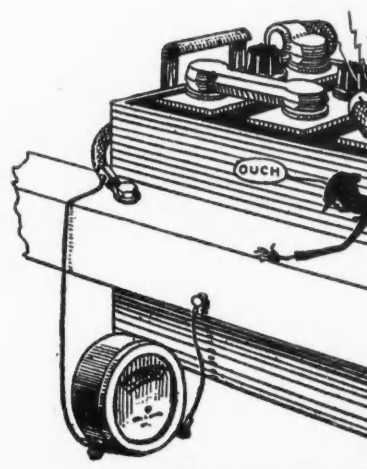
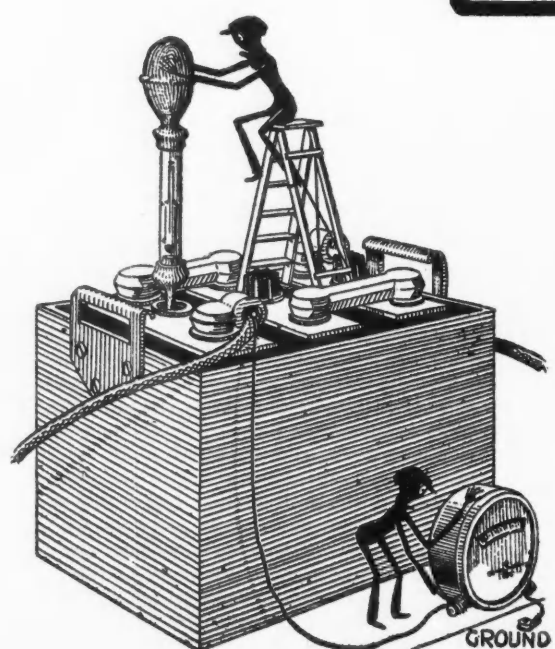
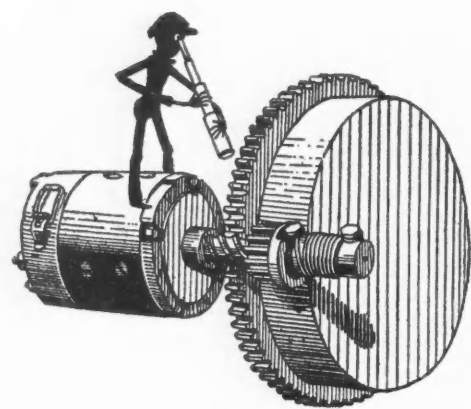
Use hydrometer and voltmeter

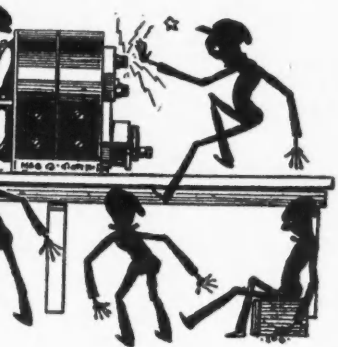
Engine tight or starter binds or is shorted.

Go

Corroded terminals or ground

Use heat test

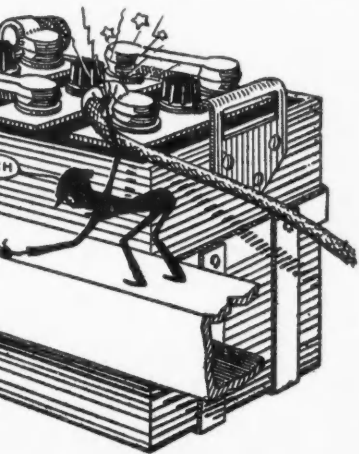


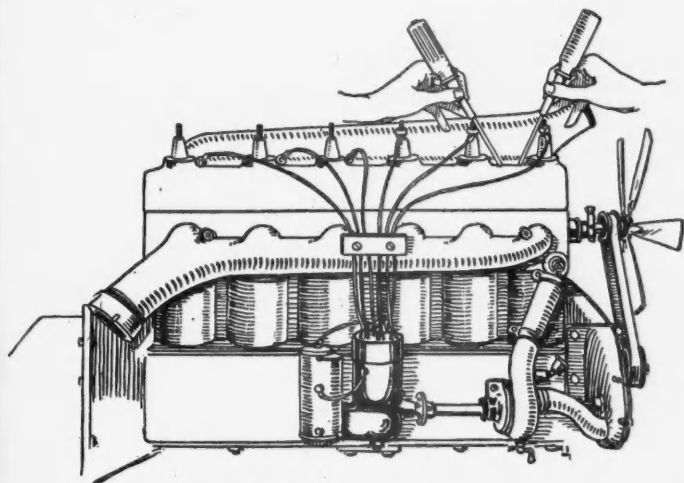


Go Out

ed contact at battery
inals or battery
ground

heat test or voltmeter





Running on one cylinder at a time will usually locate the trouble

the engine have been checked then the other block may be gone over.

With a six-cylinder engine the front three plugs and then the rear three may be put out of commission, and with the engine running on three cylinders either one or two of the plugs firing may be shorted so as to run the engine on two cylinders or on one. The same method may be employed with a 12-cylinder engine.

When the Missing Cylinder Is Located

Sometimes the above test may be made and the engine may work fairly well on all cylinders and yet the mechanic knows that something is not as it should be. For the present, however, we will assume that the miss has been definitely located in a certain cylinder. Then it is a case of see whether the trouble is really in the cylinder or whether the plug is at fault. It is not likely that the spark is at fault, for the same coil, the same cam, the same condenser, the same distributor all work to produce sparks for all the cylinders. In very exceptional cases, a certain high tension wire might have its insulation cracked, but this is a rare occurrence.

The question then becomes one of determining whether the trouble is in the spark plug or is due to mechanical trouble in the engine. One way of determining this is to reverse plugs between the bad cylinder and a good one and see if the missing stays with the same cylinder or whether it goes with the plug. If the trouble travels with the plug it, of course, shows plug trouble. The plug should then be cleaned and the points set at .025". If this gives no improvement a new plug should be tried.

If mechanical trouble is suspected it is well to look for a sticking valve, or one that does not seat properly. Trying the compression will give a fair idea as to the condition of the valves and if the compression is poor it is easy to see whether the rings or valves are at fault. This test is made by pouring a tablespoonful of 600 W through the spark plug opening to act as a temporary seal around the rings. If this corrects the compression leakage temporarily it shows ring and piston trouble. If it does not correct the trouble it shows the valves are at fault.

A system alone, of course, will not insure an accurate diagnosis, for the mechanic must use his eyes and interpret the story they tell. If, for example, a plug is oil soaked, he may conclude that that cylinder is pumping oil. Not much question about it, but before condemning that cylinder it would be well to see what the compression is like and whether the same thing happens with a new plug for it is possible that the plug is cracked and does not fire, and that the oil is due to the natural movement of oil and the accumulation which would take place in many strokes when the oil is not burned by firing in that cylinder.

Another possibility of mechanical trouble is in valve tappets set so close that with the engine warm a valve is held open.

When the Screw Driver Test Tells Nothing

Sometimes the test of running the engine on one cylinder at a time does not give conclusive results. This is due to the

fact that conditions in the engine are different idling from what they are under load. The chief difference, however, is that the throttle is nearly closed, so that but little gas is able to get to the cylinders and the compression is accordingly low. For this reason a cracked plug may continue to fire when idling, then quit when an attempt is made to pull up a hill. In the same way a coil which is weak may not show up at low speed and light load.

It is then a case of cut and try, first one thing and then another, but still bearing in mind that systematic work will get results, and that the checking off of the possibilities on the chart will enable the mechanic to be sure that he has not overlooked some likely condition due to his haste, or desire to make good while the waiting customer is doing his best to add confusion by well meant but useless suggestions.

Testing on the Road

If the engine does not miss when idling it is well to try it on the road and see whether it is giving trouble at high or low speed. Plug gaps may give trouble at high speed if set too wide and at low speed if set too close, although wide setting may also give trouble at low speed, especially in case of magneto ignition or with battery ignition if the coil is a bit weak. Trouble due to wide gap setting at low speed would also be noticed with heavy pulling, a weak coil also showing up under these conditions. Cracked plugs also show up with low speed heavy pulling so that if these are the symptoms, it is well to try new plugs and a new coil.

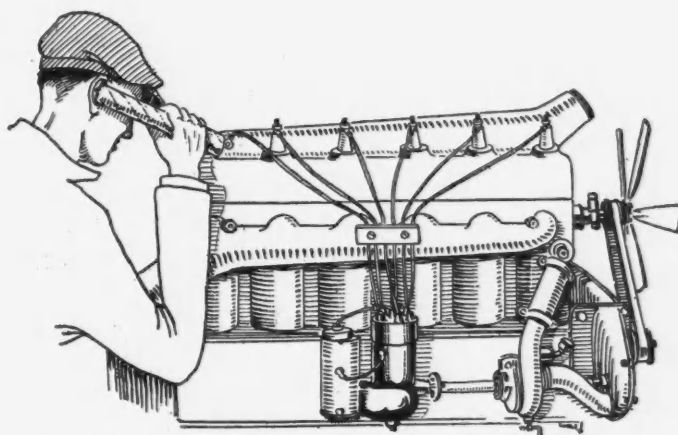
Other Low Speed Troubles

Burnt interrupter contacts may give trouble at low speed. Often the layer of tungsten has been burnt away and the only way to tell this is to clean the sides of the contacts and inspect the weld between the tungsten and the iron base. If the layer of good metal is nearly gone it is possible that in the center of the contact it is all gone due to pitting and burning.

After the Ignition Is Found O. K.

Next comes the carbureter, a lean mixture being known by popping in the carbureter and by lack of power when trying to accelerate suddenly. With the opposite trouble of a rich mixture, the condition of the spark plug insulators will usually furnish a clue. If the plugs are coated with a layer of heavy black soot it is likely that the adjustment is too rich or that there is dirt under the float chamber needle valve which is raising the fuel level too much so that the mixture is continually too rich. With trouble of this sort it is often found that at high speed the car is O. K. because it can use the gasoline fast enough to hold the level down in spite of the fact that the needle valve is held open. As soon as the engine slows down again, however, the trouble is again experienced. Under such conditions the engine gallops badly at low speeds.

Another cause of missing at low speed is air leaks in the manifold, or around the valve stems or throttle shaft of the carbureter. When such conditions get too bad they may even result in the engine dying every time it slows down. Here the test with gasoline squirted around the suspected places



The ear is faster than the eye and will detect missing at high engine speed

is perhaps the best, for if the engine is drawing in air at a gasket, and gasoline is squirted on the gasket, then this additional fuel will be drawn in and the engine will either speed up or run slower.

It sometimes happens that an attempt is made to get higher speed out of an engine by advancing the camshaft one tooth on the camshaft gear. This may have some effect on high speed operation but is also likely to result in poor low speed operation. For this reason if the running of an engine at low speed is somewhat erratic it is well to check the valve timing.

Another possibility of trouble in some V type eight or twelve-cylinder engines where two separate interrupters are used is lack of synchronization of the two pairs of contacts. Instruction books for engines of this type usually give direction for checking the time of sparks in the two different cylinder blocks, the general plan being to use two separate test lights, one of which shows the opening and closing of the interrupter circuit for each coil. In these same engines it sometimes happens that two separate carbureters are used and if the throttle opening is not the same, ragged running of the engine will result.

Trouble at High Speed

Trouble with spark plug gaps and weak coils may occur at high speed as well as at low, but there is a class of trouble that is peculiar to high speeds, this causing the spark to miss. In the operation of a battery ignition coil, a certain time is required for the battery to build up in the coil. For example, if a coil when connected to a battery draws 5 amperes, it does not mean that 5 amperes flows in the coil the instant the interrupter points close. On the other hand, the current may require one one-hundredth of a second before it reaches its full value. For this reason in eight or twelve-cylinder engines, the time of contact of the points is so short that often a special coil must be used in which the winding is so designed that the current will build up faster.

Therefore if by mistake a coil for a four-cylinder engine should be used on an eight-cylinder engine, it might develop a peculiar miss at high speed, which the mechanic would have a hard time to locate. In the same way a sticking interrupter arm would close slowly and cut down the time of contact, and give high speed trouble. Adjustment of the points in many cases also affects the angle of contact and therefore the time of contact, so that if high speed missing occurs, it might in some cases be well to try setting the interrupter points closer.

For the same reason a weak interrupter arm spring will

give trouble at high speed, although the spark is all right at low speed.

Testing the Spark at High Speed

One method of testing the spark is to remove a wire from a plug and watch the sparks that will jump to the engine when the engine is run at various speeds. The trouble with this test, however, is the fact that the eye is not quick enough to catch an occasional miss at very high speed. The old side show circus trick with three half walnut shells and a pea illustrates the fact that the hand is quicker than the eye, and if the hand is quick, what would we say of the sparks when the engine is turning over some 2,000 r.p.m.

Then if the eye is too slow we must use the ear. The listening test is quite accurate, but is seldom used in the average shop. The equipment needed is a roll of wrapping paper about three inches in diameter and two or three feet long. A card board roll such as blueprints are mailed in does very well for this purpose. To make the test a wire is removed from a plug and the spark allowed to jump to the engine across a gap of about 3/16". Then one end of the tube is held near the spark while the ear is placed at the other end of the tube.

The sound of the spark will be clearly heard. If there is no missing the sound will be a steady Br-r-r-r, but if a spark is dropped now and then a break will be noticed, like a machine gun which has hesitated, then started firing again.

With High Speed Ignition O. K.

After the high speed ignition test with the listening tube, it is time to consider the fuel system. Here again we have the possibility of carburetor adjustment being either too rich or too lean, although poor high speed adjustment is more noticeable due to loss of power than to actual missing. What may appear to be missing on account of lean mixture at high speed may actually be due to the gas line being partly clogged, so that the fuel can not flow to the carburetor fast enough. In other cases, the same symptoms may be observed if the gas line goes too close to the exhaust manifold, so that vapor collects in the line and hinders the free flow of fuel to the carburetor.

A final suggestion on high speed missing is a condition of preignition due to the presence of carbon, to projections from the cylinder walls caused by imperfect castings, or to high compression and wrong type spark plugs. Such conditions, however, are usually noticeable only under heavy sustained load and when the engine is thoroughly heated or perhaps overheated.

Title Page Photographs

THE photographs reproduced on the title page of this issue (page 9) show by remarkable contrast the progress of the automotive industry. The upper photograph was taken in 1902 at Bloomington, Ill. It was taken in the summer, of course, when all the cars shown had assembled for a weekly parade. Summer service was about the only kind known in those days. This is a photograph of the McLean County Automobile Club, one of the first motor clubs organized in the Middle West. The club is still in existence.

The cars in the photograph are identified by the correspondent who sent it to us as follows: Left to right—Three-cylinder Elmore; two-cylinder Yale;

Thomas Flyer; Mobile steamer; Oldsmobile. At the wheel of the Yale was S. P. Irwin, first president of the club. This club made its first cross-country run from Bloomington to Chicago in 1905. The trip of 127 miles required two days.

Contrast this with the scene shown in the lower photograph. In this picture is seen a modern automobile in the land of the midnight sun. It shows how the automobile of today annihilates distance and carries its owner right up to the wonders of nature. In the background of this picture is the majestic Mendelhall glacier about 15 miles from Juneau, Alaska, on the Glacier Highway. A good product well serviced makes such touring possible.

How to Charge for the Small Job

The Line Must Be Drawn Somewhere on Many of the Smaller Service Operations Which Come Under the Head of Free Service. A Good Plan to Follow Is to Group Operations and Sell Them on a Flat Rate Basis

By B. M. IKERT

IN the belief that considerable revenue is lost by the automotive dealer when his service station is called upon to perform minor adjustments both by regular customers and transients, MOTOR AGE suggests that some thought be given towards making a legitimate charge for some things which often are classified now as "free service."

A very common thing is to have a tourist drive up for some form of adjustment which takes but a few minutes and when it comes to the question "How much do I owe you?" the dealer, repairman or who ever does the work, is likely as not to say "Oh, that's all right, let it go." Or, he might say "A quarter will be about right."

Now here's what happens in such cases. If the man does not charge anything for the job, the motorist drives away and says to rest of the people in his party, "He didn't charge me a cent, but don't worry, he'll make it up on some other bird."

Or, this happens: if he charges the man a quarter or half dollar for the little job, the motorist is apt to say "Gee, no wonder these fellows make money in the automobile business, a quarter for that small job!"

Now then, how to charge for these jobs which do not warrant writing out a repair order and yet which performed many times a day run into considerable money when figured on so much per hour.

Obviously it is inconsistent to charge a man a half dollar to put some new bulbs in the headlamps of his car and when he calls again for a similar job to charge him nothing.

A tourist making a cross country trip runs into many inconsistent charges of this kind. In one town the dealer's service station will adjust the charging rate of his generator, clean the points, fill the radiator and pump up the tires, all for nothing. Five hundred miles away when he has the same work done by another

Group 2

Adjustment and Inspection

- 1—Adjust clutch
- 2—Adjust valves
- 3—Clean and adjust plugs
- 4—Adjust points and check timing
- 5—Adjust brakes
- 6—Clean generator commutator
- 7—Adjust shock absorbers
- 8—Adjust carburetor and clean vacuum tank strainer

service station or shop, the latter charges him, let's say, 75 cents.

Who is right, the shop that charged for the work or the one that did not?

The answer probably is that up to certain points both shops are right. The answer also must be governed largely by whether or not the customers involved are regular meal tickets or transients.

Certainly the man who buys a car from the dealer or who has bought cars from him in past years and patronizes his service department is entitled to a few more considerations than the customer who drives in for his first and only time. The 90-day guarantee period on the new car delivered by the dealer, together with the forms of inspection systems employed by many dealers and service stations at a flat charge for the work after a certain period, automatically takes care of many of the smaller jobs.

Certainly the dealer is justified in making a legitimate charge for the things which ought to be charged for. We recalled at one time that a certain dealer operating in a western city made a flat charge of 50 cents on all jobs that took less than a half hour to perform. That is all right when the job runs 15 or 20 minutes. Such a charge will not appear unduly high to the customer.

The difficult jobs to charge for are those which consume but a few minutes. Supposing a service station or garage spends 5 minutes doing a small job for a customer and makes no charge for the work. That would be no serious loss in itself. But, suppose the service station or shop does twenty such jobs with a total time of some two hours consumed for the work. At the rate of \$1.50 an hour, this would be a loss of \$3 a day. Multiply this by six days and you have an average loss of \$18 a week, enough to pay a clerk, stenographer or mechanic.

The flat rate system of selling maintenance is probably the best solution of the problem of charging for these small jobs. As a suggestion we have made

three groups of operations which every service station or garage is called upon to perform day in and day out.

Group 1 lists those things which might be classified as free items. Thus when a customer buys new lamp bulbs, it is more than likely that the man who sells the bulbs will also put them in, as it usually requires but a minute or two. Of course, where a real fine job of this kind is performed the lights will be re-focused because of the variation in lengths of lamp filaments. But for this story it will suffice that we assume that the job is only one of putting in the bulbs.

A customer comes in and says the fan belt of his car slips, or he says the engine gets hot when idling. The mechanic or service man tightens the fan belt and that's all there is to it. The heating may be caused by something else, but for argument's sake we assume the mechanic only tightens the belt. No charge.

Another man drives in and says he can get no lights. Fuse gone, perhaps. The mechanic gets one from the stockroom and puts it in. How much? Only a few cents for the fuse.

And so it goes on every day. Batteries will probably be tested and filled with water free of charge for a long time to come. Tires will be filled with air and likewise the radiator with water. Certain of these things are hard to associate with a price for the job and it is probably safe to say that Group 1 printed herewith probably always will be a free service proposition.

It may be possible, and in fact has been done by some dealers, to set a flat price on the things mentioned in Group 1. It is done about like this:

A tourist, let us say, garages his car for the night and he is handed a card showing substantially the items mentioned in Group 1 which, the card

(Continued on page 58)

Group 1 Free Service

- 1—Test and refill battery
- 2—Install lamp bulbs (charge for new bulb only)
- 3—Fill radiator
- 4—Tighten fan belt
- 5—Put air in tires
- 6—Drain and refill crankcase (charge for oil only)
- 7—Install fuse (charge for fuse only)
- 8—Adjust generator charging rate

Group 3 Lubrication

- 1—Oil or grease all chassis parts
- 2—Fill universal joints (if metal type)
- 3—Lubricate clutch throwout
- 4—Fill differential housing
- 5—Fill gearset
- 6—Oil lutch (wet type)
- 7—Lubricate spring leaves

Ten Commandments for the Maintenance Dealer

By PAUL DUMAS

When the Editor of MOTOR AGE began the preparation of this SUMMER SERVICE NUMBER he wrote to the service managers of all the automobile factories in the United States and asked them to suggest subjects which in their opinions should be emphasized for the advancement of the service station and the maintenance shop. When the replies were analyzed it was found that practically all of them could be included in the TEN COMMANDMENTS which Mr. Dumas has written.

I AM MAINTENANCE THY UNDERTAKING, THE HERITAGE OF TRANSPORTATION, BEFORE THE AUTOMOBILE WAS I AM AND WILT ALWAYS BE A RIGHTEOUS ENDEAVOR. THAT THOU WHO WOULDST LIVE BY ME MAY BE FILLED WITH LENGTH OF PROFITABLE DAYS AND THAT TRIBULATION MAY NOT OVERCOME THEE I HAVE GIVEN THESE TEN COMMANDMENTS—

I. THOU SHALT DEAL FAIRLY WITH THY NEIGHBOR that an evil reputation shall not overtake thee for thou shalt consider with thine eyes and shalt see the reward of the wicked.

II. THOU SHALT ABOVE ALL BE COURTEOUS TO THY CUSTOMERS that in their hands they may bear thee up lest thou dash thy business upon stones of Illwill.

III. THOU SHALT KEEP CLEAN THY STORE AND THY SHOP for an unclean house attracteth not thy son's wife nor the wife of thy neighbor, neither doth it glorify thee in the eyes of thy brother.

IV. THOU SHALT TAKE UNTO THYSELF A BOOKKEEPER to keep thy accounts that thou mayest observe the fifth commandment, for if a man seeketh success his costs must not be confounded lest his become a business that walketh about in the dark.

V. THOU SHALT SELL THY REPAIRS AT A KNOWN PRICE even as the contractor biddeth, for by so doing thou wilt cast out prejudice and

the snare of suspicion and become like the dentist a prince of merchants.

VI. THOU SHALT PAY THY EMPLOYES ACCORDING TO THEIR GOOD WORKS that the iniquity of the old law may be known to all men, for whomsoever shall sell according to the fifth commandment so also shalt he buy or recompense accordingly.

VII. THOU SHALT GATHER UNTO THY STOCKROOM MANY REPAIR PARTS that possessing them thy customer may not beseech thee in vain; for what doth it profit a man to fill his whole shop with broken carriages but suffer the loss of his own aisles and time.

VIII. THOU SHALT EQUIP THY SHOP JUDICIOUSLY that thy competitor may not overwhelm thee, for it is written unless a man prepare himself in method and equipment his custom will forsake him and by his books he will be found wanting.

IX. THOU SHALT PUT SALESMANSHIP INTO THY MAINTENANCE BUSINESS even as the clothier and car dealer for who knowest the wants of thy neighbor unless thou watchest over his possessions and exhorteth him to buy.

X. THOU SHALT BE ACTIVE IN CIVIC, SOCIAL, AND BUSINESS AFFAIRS that taking thy place beside the leaders of thy principality thou shalt reflect the dignity of thy calling for if a man hideth his light under a workbench his neighbor will not know the goodness of his house.

The Road to Profit

Being a Short Analysis of "The Ten Commandments"

By PAUL DUMAS

THE ultimate desire of every maintenance dealer is to make a profit on the sale of his merchandise. The merchandise of the dealer in maintenance is Labor and Repair parts.

Profit in maintenance like in every other business is dependent on first, attracting a sufficient number of probable buyers into your establishment and secondly, producing in those who buy your merchandise, a condition, called Owner Satisfaction. In other words "getting the business" and satisfying the purchaser are the two necessities for success. On the belief that these two necessities are fundamental and composite elements, the Ten Commandments on the opposite page were written. They are offered as an analysis and isolation of the ingredients of the two elements.

Fair Dealing

The ten commandments are arranged in the order of their importance.

The first you will note refers to Fair Dealing and requires little explanation. If as an ingredient it is not present as a part of the character of the dealer there won't be many customers and without customers there can be no Owner Satisfaction. The dealer who is the last word in Cleanliness, Courtesy, Accounting, or Flat Rate who does not deal fairly cannot easily efface the damage of a customer maliciously cheated. It is for this reason that Fair Dealing is listed as the first Commandment.

Courtesy

Granted that any given establishment has a reputation for Fair Dealing it does not necessarily follow that its business will expand unless there be visible and external signs to indicate it.

Courtesy to the average man indicates a square deal. It begins with the men in the front of the building and ends with the porter, the watchman or whatever may be the title of the lowliest employee. Courtesy is to the man who is about to buy, as important as a repair job well done to the man who has previously purchased. Courtesy is the foundation of Goodwill and the organization that is sincerely courteous is an organization of salesmen who without effort or flourish are selling the public a Good First Impression.

Cleanliness

Cleanliness is more important now than ever before. It is doubly important for the small establishment, because the big station with its multiple floors may get by, being at most times, invisible to the car owner. The dealer in the small town with a small station must stand a more rigid inspection because the small shop owner must usually bare the whole building, in-

terior and exterior, to the gaze of the car owning public. Imagine trying to give a good impression to a possible customer in a setting of greasy floors, littered benches, unkempt workmen, homeless tools, and an array of nameless junk. Imagine how difficult it must be for the most courteous dealer and mechanic to unsell the impression left by such surroundings. Imagine then a shop and organization that is both dirty and discourteous and you will realize why Cleanliness is listed third.

Bookkeeping and Flat Rate

If we could make all shop owners observe the first four commandments there would be an elimination of the so called "Alley Shop."

The shop with bookkeeping facilities is invariably operated by a man of sufficient financial responsibility so that regardless of its geographical location it automatically joins the ranks of the legitimates. As a matter of fact many a good and profitable enterprise has been built on an alley location, so that in the strictest sense location has nothing to do whatsoever with quality.

We have now traced the development of the intelligent and sincere maintenance dealer to a point where it is apparent that he has all the qualifications of a business man. In the observance of the commandments the next logical step, and the commandment, that will work out in practical use **only** if the background of business ability has been previously acquired, is to put the shop on a Flat Rate basis. But what follows Flat Rate?

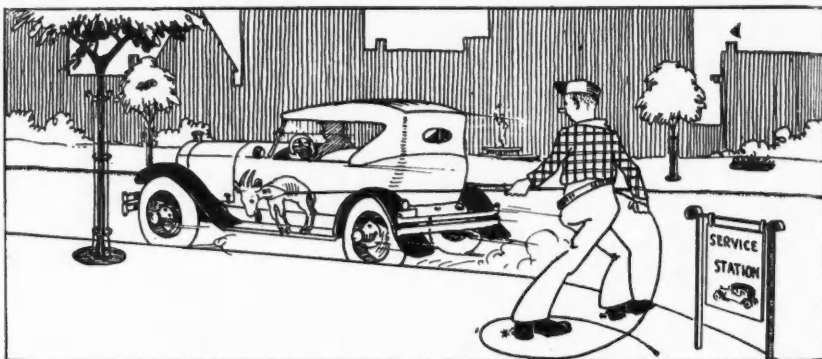
Mechanics Compensation

After Flat Rate to owners comes Flat Rate to employees or as often called, Mechanics' Compensation. The three well known methods of compensation, Piece Work, Bonus, and Combination systems have been previously described in the Flat Rate series of articles. One of the three systems of payment will suit any sized establishment and they are strongly recommended. Employees' compensation plans are the lubricants which permit smooth, frictionless running of the Flat Rate machine.

The Last Five

The sixth, seventh, eighth, ninth, and tenth commandments are in the last analysis the logical outgrowth of Flat Rate so that in reality observance of the first five suggests observance of the last five. **OBSERVE** rigidly the first five, **STUDY** the meaning of the last five and eventually you will **LEARN** to observe the whole ten.

Getting the Customer's Goat



Some service men have become so expert that they can catch the customers' goat on the fly! Motorists have admitted that they cannot even pass by that particular service station without losing their two-horned pet

An Interesting Analysis Which Explains Why the Man Who Pays the Bills Doesn't Come Back

By J. EDWARD SCHIPPER

ONCE upon a time I came away from a service station with a feeling of having been perfectly served. The car performed like it never had before, the work was well done, the price was just what had been quoted, the car came back to me with a clean windshield, with no grease on the steering wheel, with clean seats and minus the usual collection of fingermarks—and then I woke up!

If I only had been able to think I would have known that it was a dream; in fact some inner consciousness was whispered to me, "Don't kid yourself, this is some sort of nightmare!" but nobody likes to banish a pleasant dream.

It may be that in the Great Beyond, some of the saints with mechanical talents have service stations where the heavenly chariots are kept in good repair. Possibly there perfection may be found. Certainly there will be less complaint because the Chronic Kicker will never get there.

While perfection is not to be found on this earth, there may be such a close approach to it in the service business that the customer will not leave a figurative goat behind him every time he leaves the door of the service station. At the present time the service station is rare, indeed, that cannot boast of a fine collection of Angoras, Rocky Mountain and other species of the well-known family. It may be of interest and perhaps of use to refresh the mind of the garageman with a few of the things which cause the customer to leave whatever goat he brought with him behind. In fact by following some of these tips an enterprising service station can readily add to its collection, and by following them all, it can probably have the finest collection in the world.



You can get your customer's goat early by not paying any attention to him when he comes in. Let him wait while you hear friend Bill's latest funny story. It never fails!

If you want to get your customer's goat early, in fact almost immediately, don't pay any attention to him when he comes in. Let him stand and wait without allowing anyone to go near him. Have everybody in the shop acting busy but quite evidently accomplishing nothing. This never fails. It is really amusing. You can make the most mild mannered man immediately take on some of the characteristics of the Royal Bengal tigress whose kittens have been tampered with. It is a variation of that form of effective hazing known as the Silent Treatment.

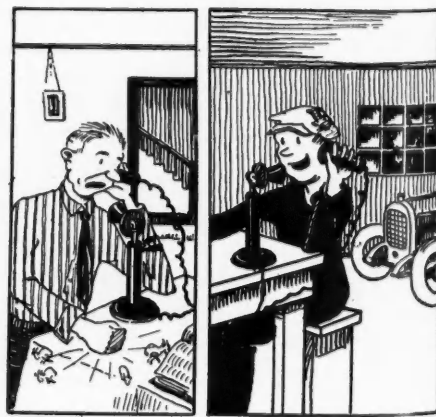
If you do not want to try the above method on account of the risk of losing business, as customers have been known to actually walk out when left alone just a shade too long, try the "Just a moment,

please," dodge. There are several varieties of this and all are almost sure goat getters. One useful method is to turn away from the prospective customer and go on with a little neighborly gossip with your friend Bill, who is visiting you, and who was thoughtlessly interrupted by the customer when he came in. A funny story can be used in place of the gossip. In fact, almost anything will do.

Another variation of the just-a-moment-please method, is to excuse yourself, before hearing the customer's story and disappear. Vanish completely. There are probably some dark corners in the stockroom where you can hide and the customer cannot find you no matter how thoroughly he searches. It might do to have someone from time to time ask the customer if any one is taking care of



The car performed perfectly, there was no grease on the steering wheel, the windshield was clean and the bill was reasonable and just what the service man said it would be—and then I woke up



After all the telephone is unsatisfactory to the real genuine goat getter. Getting a goat over the phone to him is like taking in a musical comedy over the radio—you can hear the music but you can't see 'em dance!

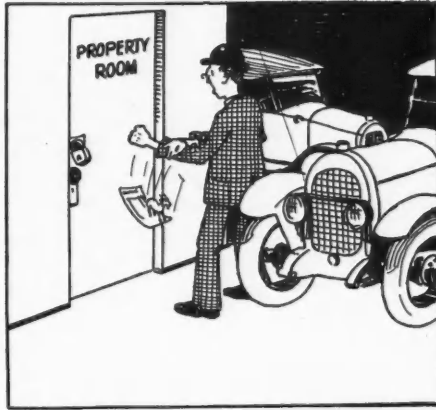
him. If this is done soon enough he will say yes. Just about the time someone else starts to wait on him, or he starts to walk out, come back.

There is less risk of losing the business, at least that particular job, by collecting the goat after the order is taken. This can be done nicely by putting a man on the service sales end who does not know his business or who cannot diagnose trouble. After the faulty diagnosis has been made and the car has been torn down, the customer is to be called up and told that the trouble is five times as serious as he has been told and that the bill will correspondingly be five times as large. Answer any arguments that he raises by adopting a take-it-or-leave-it attitude. But be sure to let him know that the car is all torn down and that a considerable bill for that part of the work has already accumulated and that he might as well go the whole way. This is practically an ideal time to suggest a general overhaul as long as the car is down. You can say that it seems to be in pretty bad shape anyway.

If you do not like to get your goats over the telephone, but would prefer to absorb your pleasures through your eyes as well as through your ears, do not call up, but put the extra work on the bill without letting him know that you are going to do it. After all the telephone is unsatisfactory to the real genuine goat-getting service man. This man is an artist in his work. He likes to see as well as to hear. Getting a goat over the phone to him, is like taking in a musical comedy on the radio. You can hear the music, but you can't see 'em dance.

An old trick, but one which is still used considerably, yes, quite considerably, is not to have the car ready when it is promised. Of course, this is crude work. It lacks finesse, but then with some persons goat-getting is only a matter of routine anyway, and a goat is only a goat. The late delivery is all right for this sort of goat collector and it has the undeniable advantage that it always works.

Some inventive genius who liked to gather his angoras in different ways than by the cut and dried methods used by others, invented the property room dodge. This was probably borrowed from a service station that really only intended to protect the property of its customers.



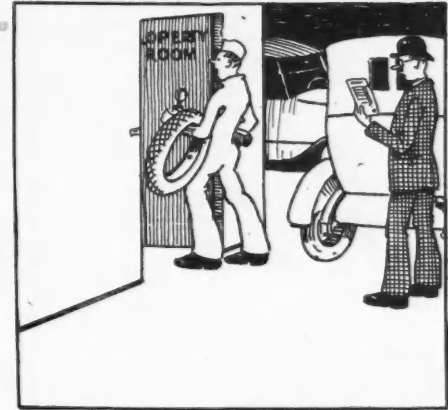
The property room as a goat trap—Its operation is simple but usually successful. The property is stored in the trap when the car is brought in as shown at the left. The trap is sprung when the owner tries to depart. It requires no attention. Just stay away while the owner raves about the locked door. It takes almost no time to get a goat this way

As used by the goat-getter, however, it is entirely different. It is simply in operation. The customer's tools, motometer, spare tires, etc., are all checked in the property room when the car goes into the shop. Presumably this is to protect the owner against petty thievery.

In converting the property room into an effective goat trap the service man simply fails to have anybody on the job in the room when the owner goes to get his car. The customer is given the car release slip and goes to the line of ready cars, picks out his own and then proceeds to drive it or get someone else to drive it out. When he gets into the car he notices that his motometer is gone and then thinks of the property room and hies himself thither.

Almost any method can be used from here on. The padlocked door, the missing attendant, the lost check or anything which makes it hard or impossible for the owner to get his stuff and get away. An air of indifference on the part of any of the attendants who happen to be in the vicinity will help.

While any dyed-in-the-wool goat-getter will scoff and say, "old stuff" when such simple tricks as grease on the steering wheel of the car belonging to the lady with white gloves, fingerprints on the freshly painted sedan body or missing tools from the tool kit, it must be remembered that every year there are a fresh crop of young goat-getters launched into the sea of service. These things must be mentioned because they are effective even if they are old. So in spite



of the risk of appearing too elementary, we have mentioned them.



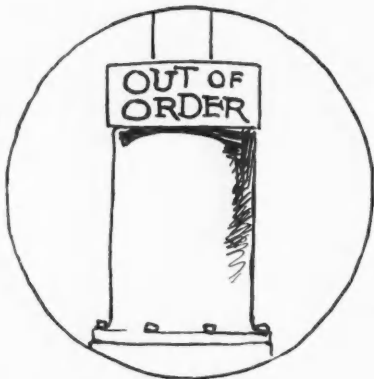
Never depart from the rules of good sportsmanship. Never be dishonest. If a hard-boiled customer insists on seeing the old part that you have claimed to have replaced with a new one, at least make a pretense of looking for it before telling him it is lost

Also, in closing, the goat-getter is urged to never depart from the rules of good sportsmanship. Never be dishonest. If a hard-boiled customer insists on seeing the old part that you have claimed to have replaced with a new one, at least make a pretense of looking for it, before telling him that it is lost.



By following these suggestions an enterprising service station can readily add to its collection of goats. In fact by following them all, it can probably have the finest collection in the world, so that other service men will come from the four corners of the earth to see and admire what can be accomplished by human ingenuity

DAN on SUMMER SURVICE



EVERYTIME i think of the way a lot of guys in this line take care of summer bizness it gives me a pain me thinking at the same time they is a lot of them that is plane unadulterated boobis which wont never be nothing eltse.

I no of one poor guy that has a little shop on the valley rode whare he works all alone. Him being one of the best mechanicks around here he has all the work he wants to do which is general overhauling and he certainly can make a buss run like new. Well thats all right so far but along comes a salesman with a swell line of talk and sells him a beutiful red and nickel plated gas pump and outfit wich he sinks into it all his capitol which was in the savings bank drawing intrist and then his trubbel begins.

Just as shure as he gets all set under a car taking up some barings with a baring cap in one hand and the shims in the other all sorted out and ready to put back somebody drives up and makes a noise like a 10 gallon sale so he beats it out and mabe finds a lady wants some free water in her radiator or a punk old bus which the driver of it only has the price for a gal. and $\frac{1}{2}$ and kicks because he sais he is short on the half him noing all the time he aint but being that kind of a guy.

Well when this bird gets back he has maid 3 sents and lost 10 minits wich is 25c worth of time and he has lost more than that becuz he has forgot about the shims and takes out one to meny and has to do it al over again.

So as he can brake even he charges the time on the repare job but he waists so much that he gets behind and repair customers get sore about overcharges and so to prevent interrupchuns he hangs a sine on the pump OUT OF ORDER but he still has his savings sunk in it wich is a shame becuz this guys summer business is going to be about 400 bucks in the hole wich it will take him quite a while to dig it out and this aint no wail against selling gas either, wich is a good bizness when done rite.

As far as i can see a repare man can make about so much wich is wages and a reasonable overhead. If he is a bang-up man he can charge a little more than the rest of them and get away with it. But this guy can't make no more money

MY MOTHER U2TO TELL ME ONE THING
AT A TIME AND THAT DONE WELL IS A VARY
GOOD ROOL A2 MENY CAN TELL AND WHEN
I LOOK AT SOM GUYS I THINK 2HES WRIGHT!

By TOM WILDER

without hiring some other guys and making a profit offen what they make.

So it looks to me like if a guy wants to go in for summer survice and wants to sell tires and acesorys and pull all them money making stunts he has got to hire some one to take care of them becuz nobody can do 2 jobs to wonst no more than this guy i was just telling about.

If he is a nachurel born meckanick he has either got to stick to repair work and be satisfied or eltse educate somebody to do the work, him still doing the directing but spending most of his time pumping gas, selling acesorys, estimating cost of jobs and shooting trubbel which is about the same as selling survice wich a guy hears so much about. If a guy comes up and you cant tell him whats the mater they aint much chanct of selling him no survice is they? Who is going to buy something wich he dont no what it is unless mabe he brakes down in front of your dump and has to get fixed up before he can go home?

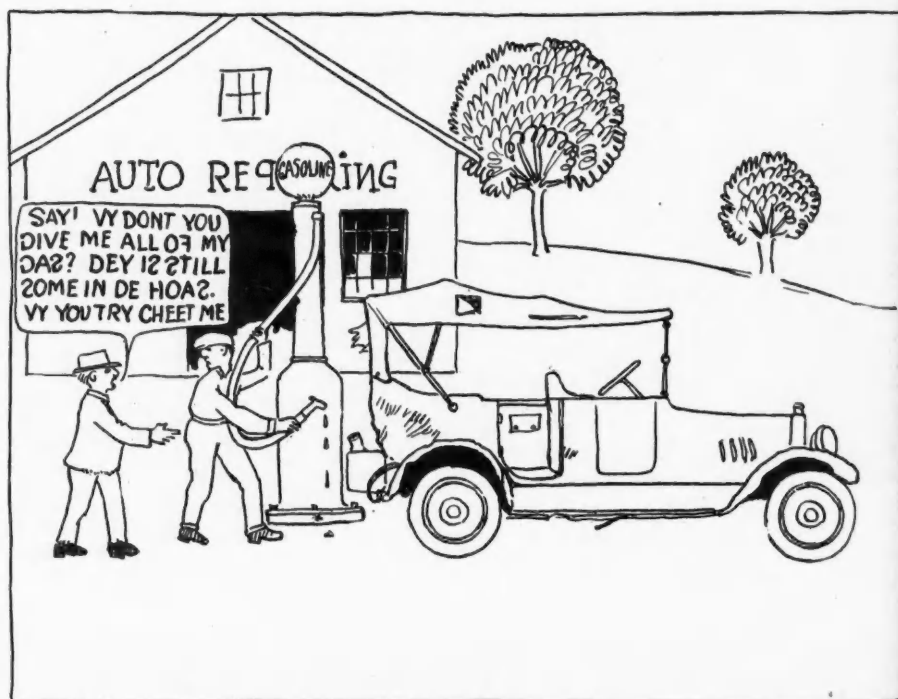
The only way a man can increase his profit is to hire some help so he can do more bizness and the only way he can give good summer survice is to have plenty of help to turn out his work in a hurry whether it is repairs or tire survice or selling acesorys or what. The more

he tries to do the less work he can do himself except watching and helping the others wich is not so easy either.

So it gets my gote to see guys trying to cash in on summer bizness and trying to do it all theirself and every time they jump from one job to another they loose their place and loose time finding it again. They try to sell gas without anybody to give survice and they try to sell tires and stuff without any place to display it and nobody nos they got it and they try to give survice with nobody to sell it or take care of guys when they come in and it aint no use it cant be done and these guys are responsibul for a lot of tawk a fellow hears about acesorys and things not paying.

When the end of the season comes these fellows havent maid enough to pay intrist on the investment in their pump or the investment in their stock of acesorys which will also be out of date next year. Everytime a guys ads a line to his bizness he has got to push it some way or he is worse ofen he was before becuz he has spend his money for it.

A one man shop is O. K. as long as a guy does one thing in it but as soon as he spreads out he has to take on as much help as it takes to run the new lines and that aint no bunk.



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